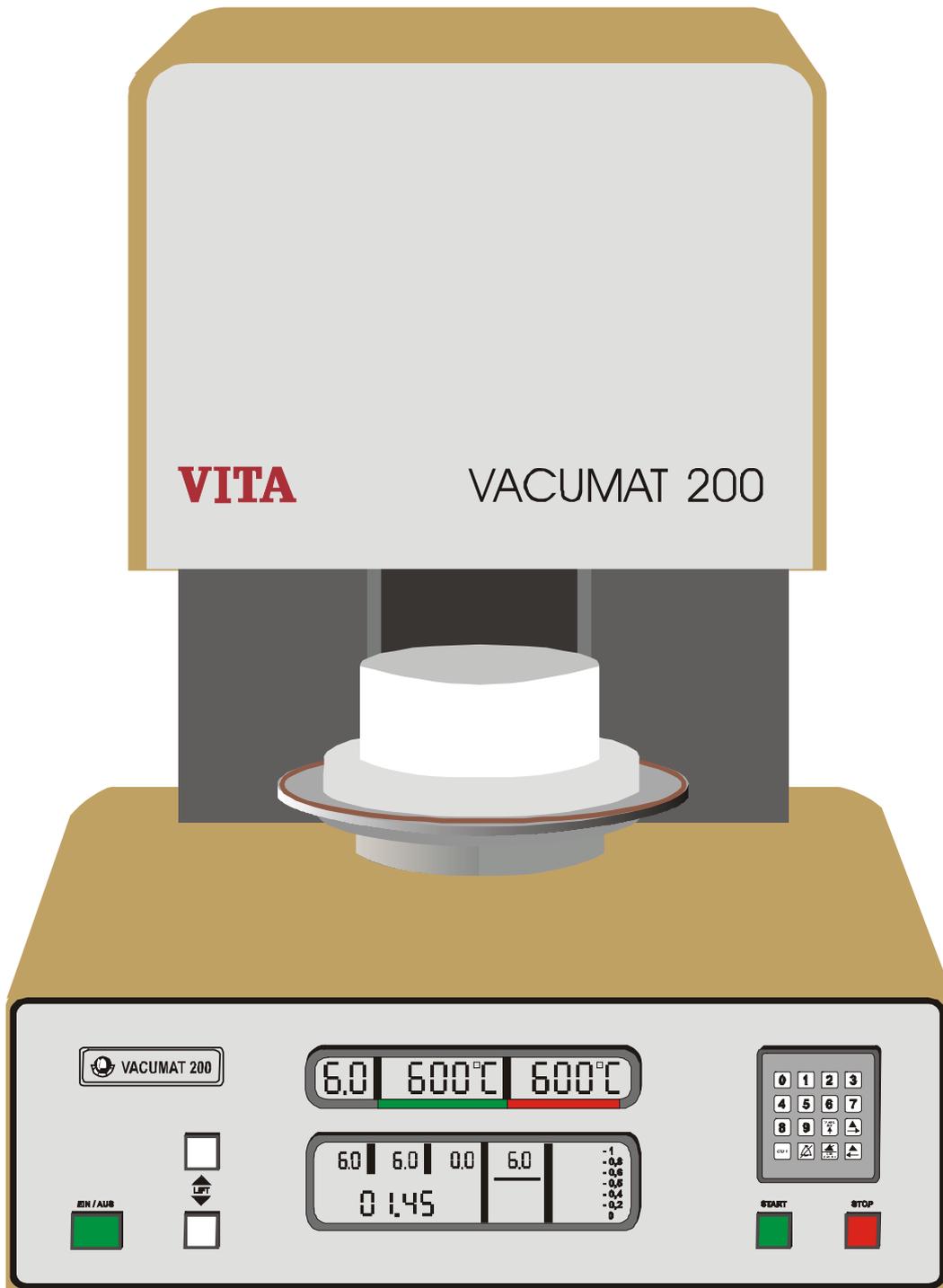


VITA - VACUMAT 200

Operating Manual



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1. Technical Specifications

Dimensions:	height: 50,0 cm width: 35,0 cm depth: 36.5 cm
Weight (excluding pump):	23 Kg
Firing chamber (utilizable space):	diameter: 9.6 cm height: 7.0 cm
Power Supply:	240 Volts A.C., 50 / 60 Hz 220 Volts A.C., 50 / 60 Hz 110 Volts A.C., 50 / 60 Hz
Maximum power consumption:	1600 Watts
Maximum temperature:	1200°C
Vacuum Pump:	Typ: PM 29, 220 Volts A.C., 50 / 60 Hz Typ: PM 29, 240 Volts A.C., 50 / 60 Hz Typ: PM 29, 110 Volts A.C., 50 / 60 Hz Weight: 6.4 Kg

Supply Schedule:

1 special packing case containing:

- 1 VITA Vacumat 200 furnace
- 1 firing tray
- 1 pair of 25cm furnace tweezers
- 1 main power lead complete with plugs
- 1 set of firing trays A and B, grey
- 1 set of porcelain trays G, grey
- 1 operating instruction manual
- 1 firing charts

plus as an optional extra
1 vacuum pump type PM 29
complete with 1 vacuum hose

All specifications subjects to change without notice.

2. Setting the Furnace Up for Use

Note: When positioning the furnace, a minimum of 25cm space should be allowed for between it and any wall, either to the rear or sides.

1. Using the supplied main power lead, connect the furnace up to an electrical power supply that is appropriate for the model, i. e. either 220 Volts A.C., 50 / 60 Hz; 240 Volts A.C., 50 / 60 Hz; 110 Volts A.C., 50 / 60 Hz; or 100 Volts A.C., 50 / 60 Hz.
2. Connect the plug of the vacuum pump up to the round socket(13) at the rear of the furnace, and then press the vacuum hose onto the nozzle (14) also at the rear of the furnace.
3. Press the power on/off switch (9) in. The green indicator light inside the switch will then come on, and the firing tray lift (3) will descend to its lower position.
4. Place the supplied firing tray (2) onto the lift support plate.
5. Press key  of the programming input keys (4), which will send the firing tray lift up into the firing chamber. The temperature inside will then rise until it reaches the starting temperature and then remain steady.
6. Once the starting temperature has been reached, the furnace is ready for firing using any program.

3. Operating the Furnace

The Power On/Off Switch:

By pressing in the power on/off switch (9), the furnace is turned on, which is indicated at all times by the green light inside the switch. In addition to this green indicator light, the current temperature display indicator will also light up the showing the temperature inside the firing chamber. The furnace is turned off by re-pressing the power on/off switch (9).

The Manual Control Keys for the Firing Tray Lift:

By pressing the upper lift key (8), the firing tray can be raised up into the firing chamber, and by pressing the lower lift key (8) the firing tray can be brought down out of the firing chamber. To operate either of these lift keys (8), the appropriate one should be pressed continuously until the lift has reached the desired position.

The Programme Activate Key „START“:

All programs are started by pressing the program activate key „START“ (5).

The Programme Interrupt Key „STOP“:

Pressing the program interrupt key „STOP“ (6) will result in the following sequence:

1. The firing tray lift will descend out of the firing chamber to its lower position. This applies even if the program is interrupted during a firing sequence, although if vacuum is existing, the firing chamber will first be fully flooded with air to equalize the atmospheres;
2. The acoustic signal will then sound to indicate the end of the program, and should be cancelled by pressing key .

The Programming Input Keys:

Figures 0 to 9 on the programming input keys are used to select a program, as well as to set or alter the end temperature setting and all the time settings in a program.

For programming, the following values can be set in full minutes and tenths of a minute

Pre-drying time:	0,0 to 99,0 min.
Heating-up time:	3.0 to 20.0 min.
End temperature firing time:	0,0 to 40.0 min.
Vacuum firing time:	0,0 to 60,0 min.
Endtemperature:	maximum 1200°C



Note: 0:1 minute = 6 seconds.

Key – The Standby Key:

Is used to prepare the furnace for firing by raising the firing tray lift, heating the firing chamber up to the starting temperature, and then continue to hold it steady. It can also be used between programs to hold the furnace in a standby condition.

Key – The Zone Access Symbol Reverse Key:

Is used to move the zone access symbol ▲ backwards on the display indicator panels.

Key – The Corrector Key:

Can be used to correct the end temperature setting or any the time setting if they have been wrongly programmed. Immediately after an incorrect number or numbers have been pressed, key  should be pushed, which will cancel that particular setting so that the correct one can then be newly programmed.

Key – The Acoustic Signal Cancel Key:

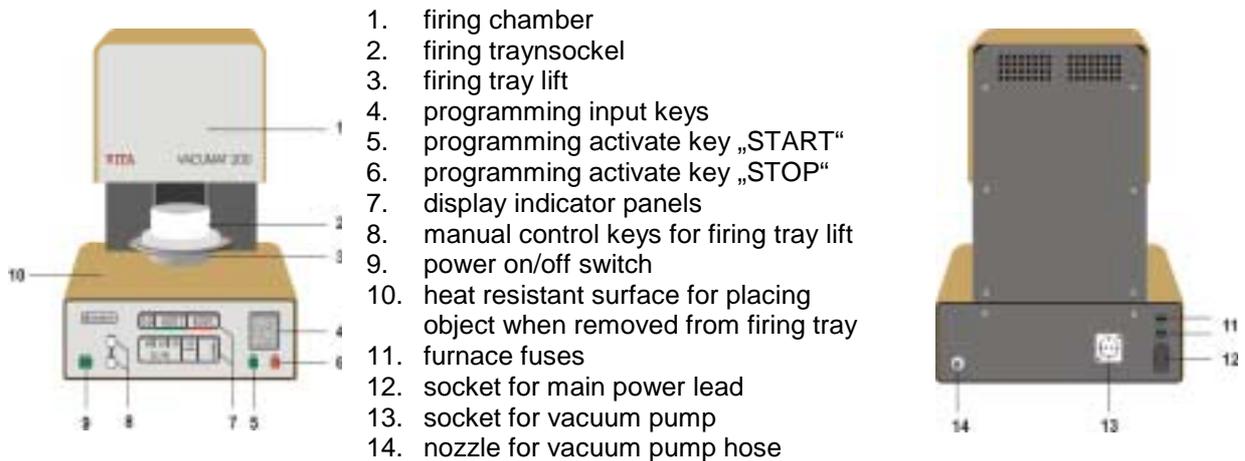
Is used to cancel the acoustic signal at the end of a program.

Key  – The Twin Function Zone Access Symbol Immediate Cancel Key / Starting Temperature Reprogram Key:

After having pressed the key  to store a setting, key E can then be pressed to immediately cancel the zone access symbol ▲. This therefore avoids having to press key  until the zone access symbol ▲ no longer appears on the display indicator panels. This key is also used to reprogram the starting temperature.

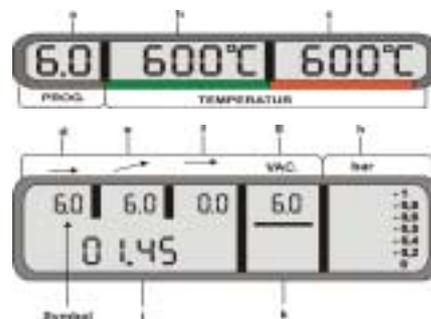
Key  – The Zone Access Symbol Key:

Is used to call up, to move, and to cancel the zone access symbol ▲ on the display indicator panels. Moving the zone access symbol ▲ on to the next program sequence zone also stores a setting that has just been altered.



4. The Display Indicator Panels

- a (Progr.) = the programme indicator
- b = the end temperature indicator
- c = the current temperature indicator
- d → = the pre-drying time indicator
- e ↗ = the heating-up time indicator
- f → = the end temperature firing time indicator
- g „VAC.“ = the vacuum firing time indicator
- h „bar“ = the vacuum indicator
- i = the time elapsed indicator
- k „F“ = the fault localization indicator



The programme Indicator a (PROGR.) shows:

1. The number of the programme that is currently in operation (i.e. numbers 1:0 to 9);
2. The termination or end of a programme (i.e. E for End)
3. That the furnace is in a standby condition with the starting temperature being held steady (i.e. H for Hold).

The End Temperature Indicator b (underlined in green) shows:

The end temperature that has been programmed, between 20 and 1200°C, as well as the existing starting temperature setting after key  or  has been pressed, between 20 and 700°C

The Current Temperature Indicator c (underlined in red) shows:

The current temperature inside the firing chamber, between 20 and 1200°C.

Indicator d → shows:

The pre-drying time that has been programmed, in full minutes and tenths of a minute (0.1 min. = 6 seconds)

Indicator e  shows:

The heating-up time that has been programed, in full minutes and tenths of a minute
(0.1 min. = 6 seconds)

Indicator f  shows:

The end temperature firing time that has been programed, in full minutes and tenths of a minute
(0.1 min. = 6 seconds)

Indicator g  shows:

The vacuum firing time that has been programed, in full minutes and tenths of a minute
(0.1 min. = 6 seconds)

Indicator h „bar“ shows:

The degree of vacuum existing in the firing chamber, from 0 to minus 1 bar.

Indicator i The Zone Access / Zone Functioning Symbol ▲:

Appears under the end temperature, and the other time settings, when key  is pressed following one of the numbered programs keys. The first time key  is pressed, it will appear under the end temperature indicator, and the second time it is pressed, it will appear under the time setting of the first sequence zone of the program that has been keyed. The setting under which the symbol appears can then be changed using the programing input keys. Once the required setting has been changed, either keys  should be pressed until the symbol ▲ no longer appears on either of the display indicator panels, or first key  to store the setting and the key  to immediately cancel the symbol. Key  can also be used to move the zone access symbol ▲ in reverse direction on the display indicator panels.

When a program is in operation, the symbol ▲ will again appear, but as the zone functioning symbol. In this case it purely indicates which of the program sequence zones is currently in operation. It should not be confused with the zone access symbol.

Indicator j The Time Elapsed Indicator shows:

The time that already elapsed within each sequence of a program, the sequence that is operating being indicated by the zone functioning symbol ▲ (i)

Indicator k The Fault Localization Indicator „F“:

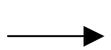
Gives notice of certain malfunctions and mispromings, and at the same time also localizes them using the following code numbers:

5. Error messages

Error 0	pry-drying-temperature lower than 50°C (only in program no. 9)	
Error 01	over-temperature or break-down of thermocouple	
Error 02	break-down of thermocouple	
Error 03	no or lower vacuum after 20 sec.	
Error 04	actuell-temperature higher as calculated / adjusted rising temperature	
Error 05	rising time	> 20 minutes
Error 06	firing temperature	< pry-drying-temperature
Error 07	vacuum time	= („0000“)
Error 08	firing time within firing chamber	> 30 minutes
Error 09	firing temperature	> 1200°C
Error 10	pry-drying-temperature	< 200°C or > 700°C
Error 20	temperature-off-set	> 20°C
Error 30	pry-drying-temperature	invalid sign
Error 31	firing temperature	invalid sign
Error 32	pry-drying-time	invalid sign
Error 33	rising-time	invalid sign
Error 34	firing-time	invalid sign
Error 35	vacuum-time	invalid sign
Error 36	cooling-temperature / program 7	invalid sign
Error 37	cooling-temperature / program 8	invalid sign
Error 40	pry-drying-temperature	value = „0000“
Error 41	firing temperature	value = „0000“
Error 42	pry-drying-time	value = „0000“
Error 43	rising-time	value = „0000“
Error 44	firing-time	value = „0000“
Error 45	vacuum-time	value = „0000“
Error 46	cooling-temperature / program 7	value = „0000“
Error 47	cooling-temperature / program 8	value = „0000“
Error 50	cooling-temperature / program 7	chosen value too high (> 1200°C)
Error 51	cooling-temperature / program 8	chosen value too high (> 1200°C)
Error 52	cooling-temperature / program 7	firing temperature is missing
Error 53	cooling-temperature / program 8	firing temperature is missing
Error 66	pry-drying-temperature	is about 100°C too high
Error 67	actuell IST-temperature	is about 30°C too high
Error 98	error within the furnace	faulty memory
Error 99	error within the furnace	faulty memory

6. The Programs

NOTE: The pre-drying temperature is always the same as the starting temperature. If the starting temperature has been changed from the original 600°C setting, the pre-drying temperature will have been changed, and will correspond to whatever the new starting temperature is.

Program				VAC	S.C.
1.0 – 1.9	•	•	•	---	---
2.0 – 2.9	•	•	•	•	---
3.0 – 3.9	•	•	•	---	---
4.0 – 4.9	•	•	•	•	---
5.0 – 5.9	•	•	•	---	---
6.0 – 6.9	•	•	•	•	---
7.0 – 7.9	•	•	•	---	•
8.0 – 8.9	•	•	•	•	•

 = Pre-drying

 = Holds end temperature

S.C. = Slow cooling

--- = Notprogramable

 = Heating-up to end temperature

VAC = Vacuum

• = Programable

Stand by:

Heats the firing chamber up to the starting temperature.

Programme 9:

Rapid cooling-down, after firing and removing restoration, to starting temperature by operating the vacuum pump. When the firing chamber is 50°C below starting temperature, the vacuum pump is turned off and the firing tray is lifted into the firing chamber. Return to stand-by.

7. Changing the Information Stored in a Program

Once a program has been selected, all time setting, as well as the end temperature setting, that are stored in that particular program, will be shown on the display indicator panels. (When new, the VITA Vacumat 200 is factory pre-programmed with the temperature and time settings that are required for firing VITA VMK 68, Vita Hi-Cream, Vitadur-N and Vita procelain – see firing chart) Each of these settings can be changed individually using the following instructions:

By Pressing key , the zone access symbol ▲ will first appear under the end temperature setting. This then allows a new end temperature setting to be made using the numbered programming input keys. By repressing key , this new end temperature (or the old unchanged one) is stored into the program, and the zone access symbol ▲ automatically moves on, to position itself under the next time setting that is part of the program that has selected. This time setting can then also be altered (or not) in exactly the same way as the first one. If no other setting in the program is to be altered, providing key  has first been pressed to store a changed setting, key  can then be pressed to immediately cancel the zone access symbol ▲. Key  can also be used to move the zone access symbol ▲ in reverse direction on the display indicator panels. The basic rule is that a setting can always be changed if the zone access symbol ▲ is lit up under it.

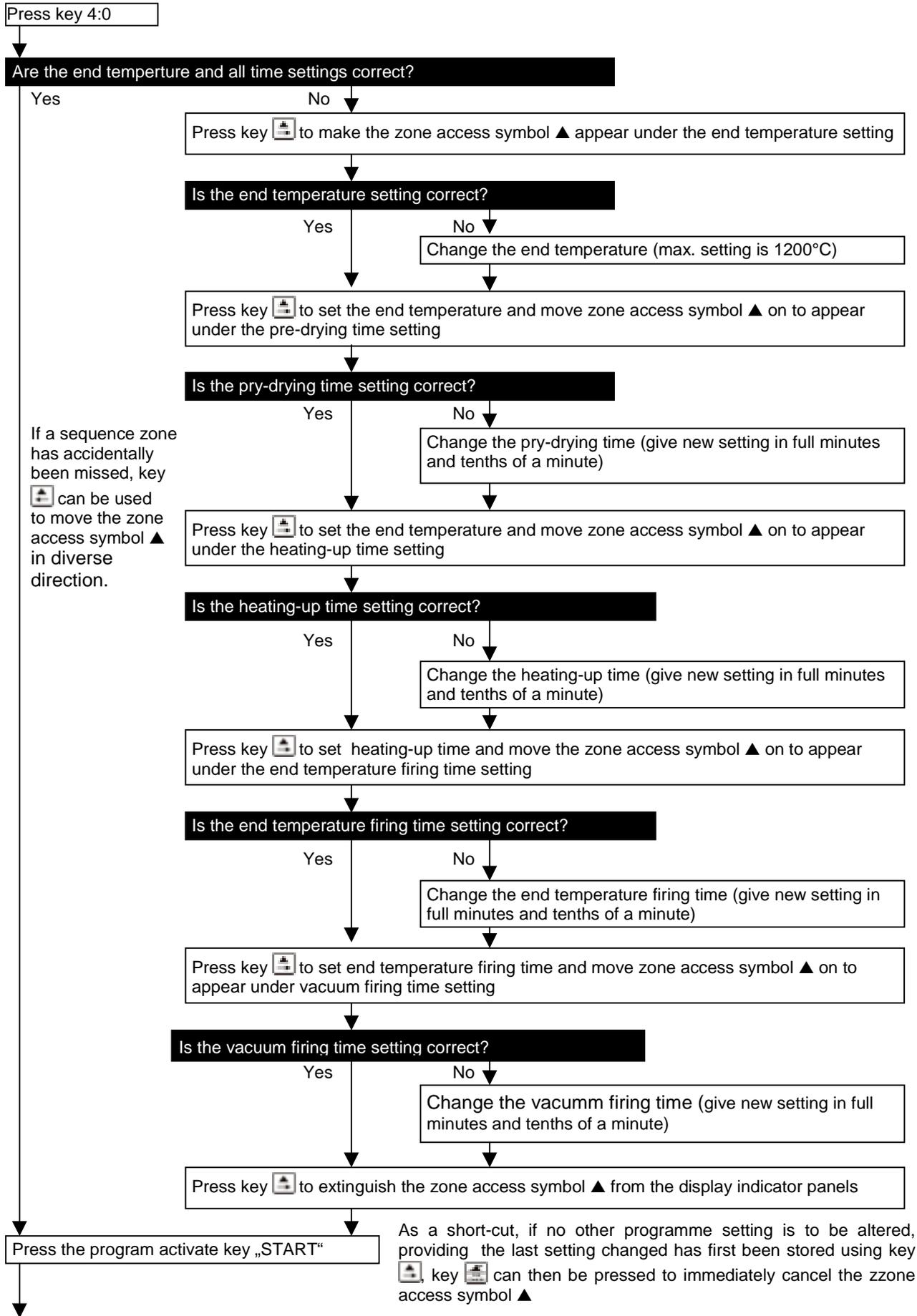
In order to then be able to start a program once it has been selected and altered, the zone access symbol ▲ should no longer be visible under any of the program setting. If necessary, therefore, key  should first be pressed to store any new setting, followed by key  to immediately cancel zone access symbol ▲. As an alternative, key  can simply be pressed until the symbol no longer appears on either of the display indicator panels.

Once a program has been started, the same symbol ▲ appears as the zone functioning symbol on the lower display indicator panel, under the setting in the sequence zone that is currently in operation. This should not be confused with the zone access symbol.

Note: The starting temperature has been factory pre-set at 600°C. For instructions on how to alter it.

Diagrammatic Sequence of the Operations Involved in Changing the Information Stored in a Programme – Example for Programme 4:0

Programme 4.0 includes: Heating-up to a given end temperature in a given time period; continued firing at the end temperature for a given time period; with a given period of the firing cycle in vacuum.



The programme will now commence and run automatically through to completion using all the instructions shown on the display indicator panels.

8. Firing Chart

Material	Firing	Progr.	appr. °C	→	↗	→	VAC
VITA VMK 68 / VITA OMEGA with precious metal alloys	Oxidation	1.0	980	0.0	3.0	5.0	0.0
	VMK 1st Opaque (Wash)	4.1	950	0.0	3.0	1.0	3.0
	VMK Opaque	4.0	930	0.0	3.0	1.0	3.0
	OMEGA 1st Opaque (Wash)	4.5	970	0.0	3.0	1.0	3.0
	OMEGA Opaque	4.6	950	0.0	3.0	1.0	3.0
	Main Vacuum	6.0	930	6.0	6.0	1.0	6.0
	1st correction	6.1	920	6.0	6.0	1.0	6.0
	2nd correction	6.2	910	6.0	6.0	1.0	6.0
	Glaze	3.0	930	0.0	3.0	1.0	0.0
	Glaze, when using VITACHROM „L“ Fluid	5.0	930	6.0	3.0	1.0	0.0
	Glaze, when using VITACHROM „L“ No. 725	5.1	900	6.0	3.0	1.0	0.0
VITA VMK 68 / VITA OMEGA with non- precious metal alloys	VMK 1st Opaque (Wash)	4.1	950	0.0	3.0	1.0	3.0
	VMK Opaque	4.0	930	0.0	3.0	1.0	3.0
	OMEGA 1st Opaque (Wash)	4.5	970	0.0	3.0	1.0	3.0
	OMEGA Opaque	4.6	950	0.0	3.0	1.0	3.0
	Main Vacuum	8.0	930	6.0	6.0	1.0	6.0
	1st correction	8.1	920	6.0	6.0	1.0	6.0
	2nd correction	8.2	910	6.0	6.0	1.0	6.0
	Glaze	7.0	930	1.0	3.0	1.0	0.0
	Glaze, when using VITACHROM „L“ Fluid	7.1	930	4.0	3.0	1.0	0.0
	Glaze, when using VITACHROM „L“ No. 725	7.2	900	4.0	3.0	1.0	0.0
For VMK 68 N Porcelain the temperatures of VMK 68 mentioned above have to be increased by 10°C							
VITA Hi-Ceram VITADUR – N / VITA Pt VITADUR ALPHA	Hardening the refractory die	5.5	1000	10.0	10.0	3.0	0.0
	Spacer „S“	5.6	1000	6.0	6.0	1.0	0.0
	1st and 2nd Hard Core Porcelain	6.6	1170	0.0	10.0	0.0	10.0
	3rd Hard Core Porcelain	6.7	1170	0.0	10.0	3.0	10.0
	Cervical Porcelain	6.8	940	0.0	6.0	1.0	6.0
	Oxidizing the VITA Pt tin-plated platinum foil	1.3	1000	0.0	3.0	1.0	0.0
	Core / Vita Pt opaque	4.3	1120	0.0	6.0	2.0	6
	Core / Vita Pt opaque, when using a Vitadur profile	6.3	1120	6.0	6.0	2.0	6
	Main vacuum	6.4	960	6.0	6.0	1.0	6
	1st and 2nd correction	6.5	950	6.0	6.0	1.0	6
	Glaze	3.3	940	0.0	3.0	1.0	0.0
	Glaze, when using VITACHROM „L“ Fluid	5.3	940	6.0	3.0	1.0	0.0
	Glaze, when using VITACHROM „L“ No. 725	5.4	920	4.0	3.0	1.0	0.0

To recall and start a program, i.e. program 6:0; press the program interrupt key „STOP“, dial the program number by pressing key 6 followed by key 0, and then press the program activate key „START“.

VITA Spectra – Seal

Program 5.7

Program settings:	end temperature:	1040 °C
	pre-drying time:	2 Min.
	heating-up time:	6,0 Min.
	endtemperatre firing time:	0,0 Min.

VITA Metall - Corrector

Program 5.8

Program settings:	end temperature:	1040 °C
	pre-drying time:	2 Min.
	heating-up time:	6,0 Min.
	endtemperatre firing time:	1,0 Min.

Soldering in the VITA VACUMATMethod 1 - In-Furnace Soldering

Preheat the restoration, complete with flux and beads solder, in a preheating furnace for 15 – 20 min. at 400°C.

Program no. 5.9

Set final temperature by adding 50 °C to melting point of solder.

Pre-drying time:	5.0 min.
Heating-up time:	5.0 min.
Hold time:	3.0 min.

Method 2

Preheat the restoration, with flux_but without solder, in apreheating_furnace for 15 – 20 min. at 400°C.

Program no. 1.9

Set final temperature by adding 50 °C to melting point of solder.

Pre-drying time:	1.00 min.
Heating-up time:	3.00 min.
Hold time:	4.00 min.

9. Eliminating Program Faults

(only be carried out by, or under the supervision of VITA authorized personnel)

a) The temperature does not rise:

1. The first possibility is that the fuses (11) at the rear of the furnace have blown, for which the remedy is simply to replace the fuses.
2. The second possibility cause is that the muffle is defective, for which the remedy is to replace the muffle.

b) No vacuum is produced:

Check and clean the ring seal around the edge of the firing tray lift, and then also check and clean the lower rim of the firing chamber where the lift seal meets it.

Note: This fault will be shown by code number 3 on the fault localization indicator (k).

c) Other problems with the programming:

Most other problems that might occur with the Vita Vacumat 200 can be corrected simply by replacing one or more of side-in control modules. For advice and diagnosis of any problems, you should contact your Vita dealer, or in case of difficulty:

The Furnace Servicing Dept.

VITA Zahnfabrik
Postfach 13 38
D – 79713 Bad Säckingen
Telephone 07761 – 562 222

Caution! Before opening the furnace for any reason, **always** isolate it from the electricity supply!

10. Changing the Muffle

(only be carried out by, or under the supervision of VITA authorized personnel)

1. The furnace should first of all be isolated from its electrical power supply by removing its plug from the socket.
2. The 4 screws on the sides of the anodized top cover of the furnace should next be unscrewed and then removed together with their screw cups, and then the cover itself be lifted off.
3. The 6 screws in the top cover of the firing chamber should next be unscrewed, and then this also be lifted out.
4. After removing the insulating disc and insulation slab, the wires from the thermocouple can then be disconnected and the insulation stone complete with thermocouple be lifted out.
5. The wires from the defective quartz glass spiral muffle should now be disconnected, and then this also be lifted out.
6. The new muffle can now be placed into position, and then the furnace be reassembled in reverse order to that given above.

CAUTION! Do not forget to reconnect the earthed conductor wire to the anodized furnace top cover!!

11. Altering the Starting Temperature

(only be carried out by, or under the supervision of VITA authorized personnel)

NOTE: The pre-drying temperature is always the same as the starting temperature. Changing the starting temperature therefore also changes the pre-drying temperature.

1. Switch on the power on/off (9) of the furnace.
2. Press the starting temperature reprogramme key  on the programming input keys (4) which will cause the end temperature indicator (b) to display the existing starting temperature setting.
3. Use the numbered programming input keys to set a new starting temperature (up to a maximum of 700°C)
4. Press key  to store the new setting.

12. Adjusting the Actual Temperature in Firing Chamber

